

all cases. The TRE may be ended at any stage if routine monitoring finds there is no longer toxicity.

- f. The San Diego Water Board may consider the results of any TRE/TIE studies in an enforcement action.

9. Reporting

The Self-Monitoring Report (SMR) shall include a full laboratory report for each toxicity test. This report shall be prepared using the format and content of the test methods manual chapter called Report Preparation, and shall include:

- a. The valid toxicity test results for the TST statistical approach, reported as "Pass" or "Fail" and "Percent Effect" at the chronic toxicity IWC for the discharge. All toxicity test results (whether identified as valid or otherwise) conducted during the calendar month shall be reported on the SMR due date specified in Table E-10.
- b. Summary water quality measurements for each toxicity test (e.g., pH, dissolved oxygen, temperature, conductivity, hardness, salinity, chlorine, ammonia).
- c. The statistical analysis used in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010) Appendix A, Figure A-1 and Table A-1, and Appendix B, Table B-1.
- d. TRE/TIE results. The San Diego Water Board shall be notified no later than 30 days from completion of each aspect of TRE/TIE analyses. Prior to the completion of the final TRE/TIE report, the Discharger shall provide status updates in the monthly SMRs, indicating which TRE/TIE steps are underway and which steps have been completed.
- e. Statistical program (e.g., TST calculator, CETIS, etc.) output results, including graphical plots, for each toxicity test.
- f. Graphical plots clearly showing the laboratory's performance for the reference toxicant for the previous 20 tests and the laboratory's performance for the control mean, control standard deviation, and control coefficient of variation for the previous 12-month period.
- g. Any additional quality assurance/quality control (QA/QC) documentation or any additional chronic toxicity-related information, upon written request from the San Diego Water Board.

D. Land Discharge Monitoring Requirements

E. Recycling Monitoring Requirements

IV. RECEIVING WATER MONITORING REQUIREMENTS

The receiving water monitoring requirements set forth below are designed to measure the effects of the EOO discharge on the receiving ocean waters, including effects on coastal water quality, seafloor sediments, and marine life. The overall receiving water monitoring program is intended to answer the following questions:

- (1) Does the receiving water meet water quality standards?
- (2) Are the receiving water conditions getting better or worse over time?
- (3) What is the relative contribution of the Facilities discharge to pollution in the receiving water?
- (4) What are the effects of the discharge on the receiving waters?

Receiving water in the vicinity of the EOO shall be conducted as specified below. This program is intended to document conditions, within the zone of initial dilution (ZID), within the waste field where initial dilution is completed, at reference stations, and at other areas beyond the ZID where discharge impacts might be reasonably expected. Station location, sampling, sample preservation, and analyses, when not specified, shall be by methods approved by the San Diego Water Board. The monitoring program may be modified by the San Diego Water Board at any time. The Discharger may also submit a list of proposed changes with supporting rational to these monitoring requirements that it considers to be appropriate to the San Diego Water Board for approval.

All receiving water monitoring shall be conducted in accordance with restrictions and requirements established by the State of California Department of Fish and Wildlife. During monitoring events, sample stations shall be located using a land-based microwave positioning system or a satellite positioning system such as global positioning system (GPS). If an alternate navigation system is proposed, its accuracy should be compared to that of microwave and satellite based systems, and any compromises in accuracy shall be justified.

A. Surf Zone Water Quality Monitoring Requirements

As ocean surface waves come closer to shore they break, forming the foamy, bubbly surface called surf. The region of breaking waves defines the surf zone.

Monitoring of the surf zone is intended to answer the following questions:

- (1) Does the effluent cause or contribute to an exceedance of the water quality standards in the receiving water?
- (2) Does the effluent reach water contact zones or commercial shellfish beds?
- (3) Are densities of bacteria in water contact areas below levels protective of public health?

1. All surf zone stations listed in Table E-1 (S-1 through S-5) shall be monitored as follows:

Table E-6. Surf Zone Water Quality Monitoring¹

Parameter	Units	Sample Type	Minimum Sampling Frequency
Visual Observations	--	Visual	²
Temperature	°C	Grab	1/Week
Total and Fecal Coliforms; Enterococcus	colony forming units, (CFU)/100 ml	Grab	1/Week ³

¹ See Attachment A for definitions of abbreviations and a glossary of common terms used in this Order.

² Visual observations of the surface water conditions at the designated receiving water stations shall be conducted in such a manner as to enable the observer to describe and report the presence, if any, of floatables of sewage origin. Observations of wind (direction and speed), weather (cloudy, sunny, or rainy), direction of current, tidal conditions (high or low), water color, discoloration, oil and grease, turbidity, and odor shall be recorded. These observations shall be taken whenever a sample is collected. Visual observations shall also be conducted for repeat sampling.

³ If a single sample exceeds any of the single sample maximum bacterial standards contained in section V.A.1.a.ii of this Order, repeat sampling at that location shall be conducted to determine the extent and persistence of the exceedance. Repeat sampling shall be conducted within 24 hours of receiving analytical results and continued until the sample result is less than the single sample maximum standard or until a sanitary survey is conducted to determine the source of the high bacterial densities. When repeat sampling is required because of an exceedance of any one single sample density, results from all samples collected during that 30-day period will be used to calculate the 30-day geometric mean. If the source of the bacterial exceedance is due to a rain event, the Discharger may cite this source in the "sanitary survey" and in such cases not conduct the repeat sampling.

2. Sample Station Omission Due to Storm Condition (including required repeat sampling).
In the event of stormy weather which makes sampling hazardous at certain shoreline

stations, collection of samples at such stations may be omitted, provided that such omissions do not occur more than five days in any calendar year or occur at consecutive sampling times, or provided that a written request from the Discharger is approved by the San Diego Water Board in writing. The visual observations listed in footnote no. 2 to Table E-6 above shall still be recorded and reported in the monthly SMR to the San Diego Water Board for these stations at the time of the sample collection. If practicable, an effort should be made to return to the sampling station that was omitted and collect the sample during calmer conditions within the same reporting period.

B. Near Shore and Offshore Water Quality Monitoring Requirements

All near shore stations shall be monitored as follows.

Near shore is generally defined as the zone bounded by the shoreline and a distance of 1,000 feet from the shoreline or the 30-foot depth contour, whichever is further from the shoreline. Offshore is generally defined as the area beyond the near shore zone. Near shore and offshore monitoring is necessary to answer the following questions:

- (1) Is natural light significantly reduced at any point outside the ZID as a result of the discharge?
- (2) Does the discharge cause a discoloration of the ocean surface?
- (3) Does the discharge of oxygen demanding waste cause the dissolved oxygen concentration to be depressed at any time more than 10 percent from that which occurs naturally outside the ZID?
- (4) Does the discharge of waste cause the pH to change at any time more than 0.2 units from that which occurs naturally outside the ZID?
- (5) Does the discharge of waste cause the salinity to become elevated in the receiving water?
- (6) Do nutrients cause objectionable aquatic growth or degrade indigenous biota?
- (7) Is the wastewater plume encroaching upon receiving water areas used for swimming, surfing, diving, and shellfish harvesting?
- (8) What is the fate of the discharge plume?

All near shore and offshore stations listed in Table E-1 (K1, K2, N2a, N3, N4, Z1, Z2, G1, G2, and R1) shall be monitored as follows:

Table E-7. Near Shore and Offshore Water Quality Monitoring Requirements¹

Parameter	Units	Sample Type	Sampling Frequency
Visual Observations	--	Visual ²	1/Quarter
Total Coliform Organisms	CFU/100 ml	Grab ³	1/Quarter
Fecal Coliform Organisms	CFU /100 ml	Grab ³	1/Quarter
Enterococcus	CFU/100 ml	Grab ³	1/Quarter
Temperature and Depth	°C, meters	Continuous Profile ⁴	1/Quarter
Dissolved Oxygen	mg/L	Continuous Profile ⁴	1/Quarter
Light Transmittance	percent	Continuous Profile ⁴	1/Quarter
pH	standard units	Continuous Profile ⁴	1/Quarter
Salinity	ppt	Continuous Profile ⁴	1/Quarter

¹ See Attachment A for definitions of abbreviations and a glossary of common terms used in this Order.

² Visual observations of the surface water conditions at the designated receiving water stations shall be conducted in such a manner as to enable the observer to describe and report the presence, if any, of floatables of sewage origin. Observations of wind (direction and speed), weather (cloudy, sunny, or rainy),

direction of current, tidal conditions (high or low), water color, oil and grease, turbidity, and odor shall be recorded. These observations shall be taken whenever a sample is collected.

- ³ At the surface and mid-depth.
- ⁴ Temperature, depth, dissolved oxygen, light transmittance, pH, and salinity profile data shall be measured throughout the entire water column using a conductivity-temperature-depth (CTD) profiler during the quarterly sampling events. Depth profile measurements shall be obtained using multiple sensors to measure parameters through the entire water column (from the surface to as close to the bottom as practicable).

C. Benthic Monitoring Requirements

Seafloor sediments integrate constituents that are discharged to the ocean. Most particles that come from the EOO discharge, and any associated contaminants, will eventually settle to the seafloor where they are incorporated into the existing sediments. Sediments can accumulate these particles over the years until the point where sediment quality is degraded and beneficial uses are impaired.

Benthic organisms are strongly affected by sediment contaminant exposure because these organisms often live in continual direct contact with sediment/pore water, and many species ingest significant quantities of sediment as a source of nutrition. Because the benthos are dependent on their surroundings, they serve as a biological indicator that reflects the overall conditions of the aquatic environment.

The assessment of sediment quality with respect to sediment chemistry, sediment toxicity and benthic community condition is necessary to answer the following questions:

- (1) Is the dissolved sulfide concentration of waters in sediments significantly increased above that present under natural conditions?
- (2) Is the concentration of substances set forth in Table 1 of the Ocean Plan for protection of marine aquatic life in marine sediments at levels which would degrade the benthic community?
- (3) Is the concentration of organic pollutants in marine sediments at levels that would degrade the benthic community?
- (4) Are benthic communities degraded as a result of the discharge?
- (5) Is the sediment quality changing over time?

The assessment of sediment quality to evaluate potential effects of the EOO discharge and compliance with narrative water quality standards specified in the Ocean Plan consist of the measurement and integration of three lines of evidence: 1) physical and chemical properties of seafloor sediments, 2) seafloor sediment toxicity to assess bioavailability and toxicity of sediment contaminants, and 3) ecological status of the biological communities (benthos) that live in or on the seafloor sediments.

1. Sediment Assessment for Physical and Chemical Properties

- a. **Sediment Sampling Stations and Monitoring Frequency.** The sediment monitoring program is designed to assess spatial and temporal trends at the offshore stations and to assess benthic habitat condition in terms of physical and chemical composition (e.g., grain-size distribution, sediment chemistry). Sediment samples for assessment of sediment chemistry shall be collected once during the permit term at each of the offshore stations listed in Table E-1 (Z1, Z2, G1, G2, and R1). Results from sediment monitoring are due no later than 180 days prior to the expiration date of this Order.

- b. **Sediment Sample Collection Methods.** Sediment samples shall be taken using a 0.1-square meter modified Van Veen grab sampler. Samples for grain-size and chemical analyses shall be taken from the top two centimeters of the surface sediment. Sediment samples for physical and chemical properties shall be taken concurrently with and adjacent to (as much as possible) the sediment samples for toxicity and benthic community condition. Bulk sediment chemical analysis shall include at a minimum the set of constituents listed in Table E-8.
- c. **Sediment Chemistry Test Methods.** Sediment chemistry is the measurement of the concentration of chemicals of concern in sediments. The chemistry line of evidence is used to assess the potential overall exposure risk to benthic organisms from pollutants in surficial sediments. Chemical analysis of sediment shall be conducted using USEPA-approved methods, methods developed by the National Oceanic and Atmospheric Administration's (NOAA's) *National Status and Trends for Marine Environmental Quality*, or methods developed in conjunction with the Southern California Bight Regional Monitoring Program. For chemical analysis of sediment, samples shall be reported on a dry weight basis.

Sediment monitoring for physical and chemical properties shall be conducted at the offshore stations listed in Table E-1 (Z1, Z2, G1, G2, and R1) for the parameters identified in Table E-8:

Table E-8. List of Parameters to Characterize Sediment Contamination Exposure and Effect¹

Parameter	Units	Type of Sample	Minimum Frequency
Sediment Grain Size	micrometer (µm)	Grab	2
Total Organic Carbon	Percent	Grab	2
Total Nitrogen	Percent	Grab	2
Acid Volatile Sulfides	milligram/kilogram (mg/kg)	Grab	2
Aluminum	mg/kg	Grab	2
Antimony	mg/kg	Grab	2
Arsenic	mg/kg	Grab	2
Cadmium	mg/kg	Grab	2
Total Chromium	mg/kg	Grab	2
Copper	mg/kg	Grab	2
Iron	mg/kg	Grab	2
Lead	mg/kg	Grab	2
Manganese	mg/kg	Grab	2
Mercury	mg/kg	Grab	2
Nickel	mg/kg	Grab	2
Selenium	mg/kg	Grab	2
Silver	mg/kg	Grab	2
Tin	mg/kg	Grab	2
Zinc	mg/kg	Grab	2
PCBs	nanogram/kilogram (ng/kg)	Grab	2
2,4-DDD	ng/kg	Grab	2
4,4-DDD	ng/kg	Grab	2
2,4-DDE	ng/kg	Grab	2
4,4-DDE	ng/kg	Grab	2
2,4-DDT	ng/kg	Grab	2
4,4-DDT	ng/kg	Grab	2
Aldrin	ng/kg	Grab	2

Parameter	Units	Type of Sample	Minimum Frequency
Alpha-Chlordane	ng/kg	Grab	2
Dieldrin	ng/kg	Grab	2
Endosulfan	ng/kg	Grab	2
Endrin	ng/kg	Grab	2
Gamma-BHC	ng/kg	Grab	2
Heptachlor	ng/kg	Grab	2
Heptachlor Epoxide	ng/kg	Grab	2
Hexachlorobenzene	ng/kg	Grab	2
Mirex	ng/kg	Grab	2
Trans-Nonachlor	ng/kg	Grab	2
Acenaphthene	microgram/ kilogram (µg/kg)	Grab	2
Acenaphthylene	µg/kg	Grab	2
Anthracene	µg/kg	Grab	2
Benzo(a)anthracene	µg/kg	Grab	2
Benzo(o)fluoranthene	µg/kg	Grab	2
Benzo(k)fluoranthene	µg/kg	Grab	2
Benzo(ghi)pyrene	µg/kg	Grab	2
Benzo(a)pyrene	µg/kg	Grab	2
Benzo(e)pyrene	µg/kg	Grab	2
Biphenyl	µg/kg	Grab	2
Chrysene	µg/kg	Grab	2
Dibenzo(ah)anthracene	µg/kg	Grab	2
Fluoranthene	µg/kg	Grab	2
Fluorene	µg/kg	Grab	2
Ideno(123cd)pyrene	µg/kg	Grab	2
Naphthalene	µg/kg	Grab	2
1-Methylnaphthalene	µg/kg	Grab	2
2-Methylnaphthalene	µg/kg	Grab	2
2,6-Dimethylnaphthalene	µg/kg	Grab	2
2,3,5-Trimethylnaphthalene	µg/kg	Grab	2
Perylene	µg/kg	Grab	2
Phenanthrene	µg/kg	Grab	2
1-Methylphenanthrene	µg/kg	Grab	2
Pyrene	µg/kg	Grab	2

¹ See Attachment A for definitions of abbreviations and a glossary of common terms used in this Order.

² Once during the permit term.

2. Sediment Toxicity

- a. **Toxicity Sampling Stations and Frequency.** Sediment toxicity is a measure of the response of invertebrates exposed to surficial sediments under controlled laboratory conditions. The sediment toxicity line of evidence is used to assess both pollutant related biological effects and exposure. Sediment samples for assessment of toxicity shall be monitored once during the permit term at each of the offshore stations listed in Table E-1 (Z1, Z2, G1, G2, and R1). Results from sediment toxicity sampling are due no later than 180 days prior to the expiration date of this Order.
- b. **Sediment Toxicity Collection Methods.** Sediment samples shall be taken using a 0.1-square meter modified Van Veen grab sampler. Samples for toxicity analyses shall be taken from the top two centimeters of the surface sediment. Sediment samples for toxicity shall be taken concurrently with and adjacent to (as much as

possible) the sediment samples for physical and chemical properties, and benthic community condition.

- c. **Sediment Toxicity Test Methods.** Sediment toxicity tests shall utilize alternative amphipod species (*Eohaustorius estuaries*, *Leptocheirus plumulosus*, *Rhepoxynius abronius*) and be conducted in accordance with EPA 600/R-94/0925 (USEPA, 1994), *Methods for Assessing the Toxicity of Sediment-associated Contaminants with Estuarine and Marine Amphipods*, and the Southern California Bight Project sediment toxicity testing guidelines (Bight'13 Toxicology Committee, 2013). Response criteria shall include mortality, emergence from sediment during exposure, and ability to rebury in clean sediment at the end of the 10-day exposure period. Results shall be reported as "pass"/"fail" and percent response.
- d. **Data Analysis.** Analysis of sediment toxicity shall include a calculation of the mean control normalized response.

3. Benthic Community Condition

- a. **Benthic Community Sampling Stations and Frequency.** Sediment samples for assessment of benthic community structure shall be collected once during the permit term at each of the offshore stations listed in Table E-1 (Z1, Z2, G1, G2, and R1). One sample per station shall be collected for analysis of benthic community structure. Results from benthic community sampling are due no later than 180 days prior to the expiration date of this Order.
- b. **Benthic Community Sample Collection Methods.** Benthic community samples shall be collected using the guidance specified in the most recent field manual developed for the Southern California Bight Regional Monitoring Program. The benthic samples shall be collected using a 0.1-square meter modified Van Veen grab sampler. These grab samples shall be separate from (but adjacent to as much as possible) samples collected for sediment physical and chemical properties, and toxicity. The samples shall be sieved using a 1.0-millimeter mesh screen. The benthic organisms retained on the sieve shall be fixed in 10 percent buffered formalin, and transferred to at least 70 percent ethanol within two to seven days of storage. All benthic invertebrates in the screened sample shall be identified to the lowest possible taxon, enumerated (counted), measured, and, where feasible, assessed for reproductive condition.
- c. **Benthic Community Analysis.** Analysis of benthic community structure shall include determination of the number of species, number of individuals per species, and total numerical abundance present. The following parameters or metrics shall be calculated for each 0.1-square meter grab sample and summarized by station, as appropriate:
 - i. Number of species;
 - ii. Total numerical abundance;
 - iii. Benthic Response Index (BRI);
 - iv. Swartz's 75 percent dominance index;
 - v. Shannon-Weiner's diversity index (H); and
 - vi. Pielou evenness index (J).

4. **Sediment Monitoring Work Plan**

- a. **Sediment Monitoring Work Plan.** The Discharger shall submit to the San Diego Water Board within 180 days after the effective date of this Order, a Sediment Monitoring Work Plan to implement an ongoing sediment monitoring program. The Work Plan shall include the following elements:
 - i. An ELAP approved Quality Assurance Project Plan (QAPP) describing the project objectives and organization, functional activities, and quality assurance/quality control protocols;
 - ii. Protocols for sediment sample collection and processing;
 - iii. Proposed methods for analyzing sediment data and integrating the three lines of evidence (i.e., sediment physical and chemical properties, sediment toxicity, and benthic community condition); and
 - iv. Schedule for completion of sample collection and submission of the results.
- b. **Sediment Monitoring Work Plan Implementation.** The Discharger shall implement the Sediment Monitoring Work Plan sixty (60) days after submission of the Sediment Monitoring Work Plan, unless otherwise directed in writing by the San Diego Water Board. The Discharger shall notify the San Diego Water Board of the intent to initiate the proposed actions included in the Work Plan; and comply with any conditions set by the San Diego Water Board.

D. **Fish and Macroinvertebrates Monitoring Requirements**

Many pollutants discharged into receiving waters have the potential to bioaccumulate and persist in tissues of aquatic organisms, including marine fishes. Chemical pollutants that bioaccumulate tend to biomagnify as they pass through the aquatic food chain. Therefore, fish monitoring data is required to assess the human health risks for individuals who may consume fish and to assess trends of contaminants levels in fish tissue over time.

Aquatic benthic invertebrates are excellent indicators of ecosystem health because they are ubiquitous, abundant, diverse, and typically sedentary. The growth, survival, and reproduction of many species of aquatic invertebrates are all sensitive to changes in environmental health, making analysis of assemblage structure a good ecosystem monitoring tool.

Fish and invertebrate monitoring is necessary to answer the following questions:

- (1) Does the concentration of pollutants in fish, shellfish, or other marine organisms used for human consumption bioaccumulate to levels that are harmful to human health?
- (2) Does the concentration of pollutants in marine life bioaccumulate to levels that degrade marine communities?
- (3) Are the concentrations of pollutants in fish and other marine organisms changing over time?
- (4) Is the health of fish changing over time?
- (5) Are the populations of selected species of fish and invertebrates changing over time?

1. **Fish and Invertebrate Trawls**

- a. **Demersal Fish and Invertebrate Trawl Frequency and Locations.** Fish and invertebrate trawls shall be conducted to assess the structure of demersal fish and megabenthic invertebrate communities, while the presence of priority pollutants in fish shall be analyzed from species captured using both trawling and rig fishing

techniques. Single community trawls for fish and invertebrates shall be conducted once per permit term at the four biological transect (trawl) stations T1, T2, T3 and T4 listed in Table E-1. These trawl stations represent two areas near Discharge Point No. 001 (stations T2 and T3), one area upcoast of Discharge Point No. 001 (station T4), and one area downcoast of Discharge Point No. 001 (station T1). The Discharger shall notify the San Diego Water Board of the intent to initiate the fish and invertebrate trawls, no later than 30 days before the survey. Results from the fish and invertebrate trawls are due no later than 180 days prior to the expiration date of this Order.

- b. **Fish and Invertebrate Trawl Method.** Trawls shall be conducted using a Marinovich 7.62 m (25 feet) head rope otter trawl, using the guidance specified in the most recent field manual developed for the Southern California Bight Regional Monitoring Program. Captured organisms shall be identified at all stations.

In order to minimize negative impacts that may occur due to unsuccessful trawling efforts associated with unusual environmental conditions, the requirement to conduct trawls during any given period may be postponed or waived at the discretion of the Executive Officer of the San Diego Water Board upon receipt of written justification provided by the Discharger. Examples of such unusual events include the presence of large populations of red tuna crabs (*Pleuroncodes planipes*) associated with El Niño and the occurrence of large squid egg masses that prevent hauling in the trawl nets.

- c. **Fish and Invertebrate Community Structure Analysis.** All demersal fishes and megabenthic invertebrates collected by trawls shall be identified by species if possible. For fish, community structure analysis shall consist of determining the standard length and total wet weight, total number of individuals per species, the total numerical abundance of all fish, species richness, species diversity (H'), and multivariate pattern analyses (e.g., ordination and classification analyses). The presence of any physical abnormalities or disease symptoms (e.g., fin erosion, external lesions, and tumors) or external parasites shall also be recorded. For invertebrates, community structure shall be summarized as the total number of individuals per species, the total numerical abundance of all invertebrates, species richness, and species diversity (H').
- d. **Fish Tissue Chemical Analysis.** Chemical analyses of fish tissues shall be performed once per permit term on target species collected at or near the trawl stations. The four trawl stations are classified into three zones for the purpose of collecting sufficient numbers of fish for tissue analyses. Trawl Zone 1 represents the nearfield zone, defined as the area within a 1-km radius of trawl stations T2 and/or T3; Trawl Zone 2 is considered the northern farfield zone, defined as the area within a 1-km radius of trawl station T4; and Trawl Zone 3 is considered the southern farfield zone, and is defined as the area centered within a 1-km radius of trawl station T1.

Liver tissues shall be analyzed during each survey from fishes collected in each of the above three trawl zones. No more than a maximum of five 10-minute (bottom time) trawls shall be required per zone in order to acquire sufficient numbers of fish for composite samples; these trawls may occur anywhere within a defined zone. If sufficient numbers of trawl zone target species cannot be, or are unlikely to be, captured by trawling, fish for tissue analysis from these areas may be collected using alternative methods such as those described below under Rig Fishing in section IV.D.2.b of this MRP (e.g., hook and line, baited lines). Three replicate

composite samples shall be prepared from each trawl zone, with each composite consisting of tissues from at least three individual fish of the same species. These liver tissues shall be analyzed for the constituents listed in the Table E-9.

- e. **Fish Targeted for Chemical Analysis.** The species of fish targeted for tissue analysis from the trawl sites shall be primarily flatfish including, but not limited to, Pacific sanddab (*Citharichthys sordidus*), longfin sanddab (*Citharichthys xanthostigma*), bigmouth sole (*Hippoglossina stomata*), and hornyhead turbot (*Pleuronichthys verticalis*). If sufficient numbers of these primary flatfish species are not present in a zone, secondary candidate species such as the California scorpionfish (*Scorpaena guttata*) and halfbanded rockfish (*Sebastes semicinctus*) may be collected as necessary.

2. Rig Fishing

- a. **Rig Fishing Frequency.** Fish muscle tissues shall be analyzed once during the permit term from fishes collected in each of the three rig fishing zones described below in order to monitor the uptake of pollutants in selected species. The Discharger shall notify the San Diego Water Board of the intent to initiate sample collection, no later than 30 days before sampling. Results from the fish muscle tissue analyses are due no later than 180 days prior to the expiration date of this Order.
- b. **Rig Fishing Method and Location.** The fish shall be collected by hook and line or by setting baited lines from within zones surrounding rig fishing stations RF1, RF2, and RF3 listed in Table E-1. Rig Fishing Zone 2 is the nearfield area centered within a 1-km radius of station RF2; Rig Fishing Zone 1 represents the southern farfield area centered within 1-km radius of station RF1; and Rig Fishing Zone 3 represents the northern farfield area centered within a 1-km radius of station RF3. There are no depth requirements for these three rig fishing zones with regards to the collection of fishes for tissue analysis. Fish samples shall be identified to species, with number of individuals per species, standard length and wet weight recorded. Physical abnormalities and disease symptoms shall be recorded and itemized (e.g., fin rot, lesions, and tumors).
- c. **Rig Fishing Targeted Species.** The species of fish targeted for tissue analysis from the rig fishing stations shall be representative of those caught by recreational and/or commercial fishery activities in the region. The species targeted for muscle tissue analysis shall be primarily rockfish (*Sebastes spp.*), excluding species restricted by the California Department of Fish and Wildlife. If sufficient numbers of rockfish are not present or cannot be caught in a particular zone, secondary target species (e.g., scorpionfish) may be collected and analyzed as necessary.
- d. **Rig Fishing Collection.** Three replicate composite samples of the target species shall be obtained from each zone, with each composite consisting of a minimum of three individual fish. Muscle tissue shall be chemically analyzed for the same set of constituents as trawl-caught fish specified in Table E-9.

Table E-9. List of Parameters to Characterize Fish Tissue¹

Parameter	Units	Type of Sample	Minimum Frequency
Total Lipids	mg/kg	Composite	2
Arsenic	mg/kg	Composite	2
Cadmium	mg/kg	Composite	2
Chromium	mg/kg	Composite	2
Copper	mg/kg	Composite	2

Parameter	Units	Type of Sample	Minimum Frequency
Lead	mg/kg	Composite	2
Mercury	mg/kg	Composite	2
Nickel	mg/kg	Composite	2
Selenium	mg/kg	Composite	2
Silver	mg/kg	Composite	2
Zinc	mg/kg	Composite	2
PCBs	ng/kg	Composite	2
2,4-DDD	ng/kg	Composite	2
4,4-DDD	ng/kg	Composite	2
2,4-DDE	ng/kg	Composite	2
4,4-DDE	ng/kg	Composite	2
2,4-DDT	ng/kg	Composite	2
4,4-DDT	ng/kg	Composite	2
Aldrin	ng/kg	Composite	2
Alpha-Chlordane	ng/kg	Composite	2
Dieldrin	ng/kg	Composite	2
Endosulfan	ng/kg	Composite	2
Endrin	ng/kg	Composite	2
Gamma-BHC	ng/kg	Composite	2
Heptachlor	ng/kg	Composite	2
Heptachlor Epoxide	ng/kg	Composite	2
Hexachlorobenzene	ng/kg	Composite	2
Mirex	ng/kg	Composite	2
Trans-Nonachlor	ng/kg	Composite	2
Acenaphthene	µg/kg	Composite	2
Acenaphthylene	µg/kg	Composite	2
Anthracene	µg/kg	Composite	2
Benzo(a)anthracene	µg/kg	Composite	2
Benzo(o)fluoranthene	µg/kg	Composite	2
Benzo(k)fluoranthene	µg/kg	Composite	2
Benzo(ghi)pyrene	µg/kg	Composite	2
Benzo(a)pyrene	µg/kg	Composite	2
Benzo(e)pyrene	µg/kg	Composite	2
Biphenyl	µg/kg	Composite	2
Chrysene	µg/kg	Composite	2
Dibenzo(ah)anthracene	µg/kg	Composite	2
Fluoranthene	µg/kg	Composite	2
Fluorene	µg/kg	Composite	2
Ideno(123cd)pyrene	µg/kg	Composite	2
Naphthalene	µg/kg	Composite	2
1-Methylnaphthalene	µg/kg	Composite	2
2-Methylnaphthalene	µg/kg	Composite	2
2,6-Dimethylnaphthalene	µg/kg	Composite	2
2,3,5-Trimethylnaphthalene	µg/kg	Composite	2
Perylene	µg/kg	Composite	2
Phenanthrene	µg/kg	Composite	2
1-Methylphenanthrene	µg/kg	Composite	2
Pyrene	µg/kg	Composite	2

¹ See Attachment A for definitions of abbreviations and a glossary of common terms used in this Order.

² Once during the permit term.

E. Receiving Water Status and Trends

1. **Receiving Water Monitoring Report.** The Discharger shall submit a receiving water monitoring report once no later than 180 days prior to the expiration date of this Order. The receiving water monitoring report shall cover the following requirements:
 - a. Shoreline, near shore, and offshore water quality (sections IV.A and IV.B of this MRP);
 - b. Sediment assessment for physical and chemistry properties (section IV.C.1 of this MRP);
 - c. Sediment toxicity (section IV.C.2 of this MRP);
 - d. Benthic community condition (section IV.C.3 of this MRP);
 - e. Demersal fish and macroinvertebrate trawls (section IV.D.1 of this MRP);
 - f. Rig fishing (section IV.D.2 of this MRP); and
 - g. Plume tracking (section VI.B of this MRP).
2. The report shall include, as a minimum, the following information:
 - a. A description of climatic and receiving water characteristics at the time of sampling (weather observations, floating debris, discoloration, wind speed and direction, swell or wave action, time of sampling, tide height, etc.);
 - b. A description of sampling stations, including, if such information is available, differences unique to each station (e.g., station location, sediment grain size, distribution of bottom sediments, rocks, shell litter, calcareous worm tubes, etc.);
 - c. A description of the sample collection and preservation procedures used in the survey;
 - d. A description of the specific method used for laboratory analysis;
 - e. An in-depth discussion, evaluation (e.g., detailed statistical analyses), interpretation and tabulation of the data including interpretations and conclusions as to whether applicable receiving water limitations in this Order have been attained at each station; and
 - f. An in-depth discussion addressing the questions proposed in each section of the Receiving Water Monitoring Requirements of this MRP.
3. **State of the Ocean Report.** The Discharger shall present an oral report to the San Diego Water Board summarizing the conclusions of the receiving water monitoring report. The State of the Ocean Report shall be given once no later than 180 days prior to the expiration date of this Order. If an oral report cannot be scheduled for a San Diego Water Board meeting, the San Diego Water Board may approve submission of a written State of the Ocean Report. The State of the Ocean Report shall include, at minimum, the following elements:
 - a. Description of the monitoring effort completed;
 - b. The status and trends of receiving water quality conditions; and
 - c. Plans for future monitoring efforts.

V. REGIONAL MONITORING REQUIREMENTS

Regional ocean water monitoring provides information about the sources, fates, and effects of anthropogenic contaminants in the coastal marine environment necessary to make assessments over large areas. The large-scale assessments provided by regional monitoring describe and evaluate cumulative effects of all anthropogenic inputs and enable better decision making regarding protection of beneficial uses of ocean waters. Regional monitoring data assists in the interpretation of core monitoring studies by providing a more accurate and complete characterization of reference conditions and natural variability. Regional monitoring also leads to methods standardization and improved quality control through inter-calibration exercise. The coalitions implementing regional monitoring enable sharing of technical resources, trained personnel, and associated costs. Focusing these resources on regional issues and developing a broader understanding of pollutants effects in ocean waters enables the development of more rapid and effective response strategies. Based on all of these considerations the San Diego Water Board supports regional approaches to monitoring ocean waters.

The Discharger shall, as directed by the San Diego Water Board, participate with other regulated entities, other interested parties, and the San Diego Water Board in development and implementation of new and improved monitoring and assessment programs for ocean waters in the San Diego Region and discharges to those waters. These programs shall be developed and implemented so as to answer the following questions:

- (1) What are the status and trends of conditions in ocean waters in the San Diego Region with regard to beneficial uses? For example:
 - i. Are fish and shellfish safe to eat?
 - ii. Is water quality safe for swimming?
 - iii. Are ecosystems healthy?
- (2) What are the primary stressors causing or contributing to conditions of concern?
- (3) What are the major sources of the stressors causing or contributing to conditions of concern?
- (4) Are the actions taken to address such stressors and sources effective (i.e., environmental outcomes)?

Development and implementation of new and improved monitoring and assessment programs for ocean waters will be guided by the following:

1. The Ocean Plan;
2. San Diego Water Board Resolution No. R9-2012-0069, *Resolution in Support of A Regional Monitoring Framework*;
3. San Diego Water Board staff report entitled *A Framework for Monitoring and Assessment in the San Diego Region*; and
4. Other guidance materials, as appropriate.

A. Kelp Bed Canopy Monitoring Requirements

Kelp consists of a number of species of brown algae. Along the central and southern California coast, giant kelp (*Macrocystis pyrifera*) is the largest species colonizing rocky, and in some cases sandy, subtidal habitats. Giant kelp is an important component of coastal and island communities in southern California, providing food and habitat for numerous animals. Monitoring of the kelp beds is necessary to answer the following questions:

- (1) What is the maximum areal extent of the coastal kelp bed canopies each year?
- (2) What is the variability of the coastal kelp bed canopy over time?
- (3) Are coastal kelp beds disappearing? If yes, what are factors that could contribute to the disappearance?
- (4) Are new coastal kelp beds forming?

The Discharger shall participate with other Southern California ocean dischargers in an ongoing regional survey of coastal kelp beds in the Southern California Bight. The intent of these surveys is to provide an indication of the health of these kelp beds, recognizing that the extent of kelp bed canopies may change due to a variety of influences.

Kelp beds shall be monitored by means of vertical aerial infrared photography to determine the maximum areal extent of the canopies of coastal kelp beds each year. Surveys shall be conducted as close as possible to when kelp bed canopies are at their greatest extent during the year. The entire San Diego Region coastline, from the international boundary to the San Diego Region/Santa Ana Region boundary shall be photographed on the same day.

Annually by October 1, the Discharger shall submit to the San Diego Water Board a report which summarizes the data, analyses, assessment, and images produced by the surveys. The report is a joint collaboration among multiple ocean dischargers in the Southern California (e.g., Regional 9 Kelp Survey Consortium member agencies). In addition to the kelp bed canopies, the images shall show onshore reference points, locations of all ocean outfalls and diffusers, artificial reefs, areas of known hard-bottom substrate (i.e., rocky reefs), and depth contours at intervals of 30-feet mean lower low water (MLLW). The report shall also be made available in a user-friendly format on a website that is readily available to the public.

The surveys shall be conducted on a “continuous improvement” basis, as needed improvements shall be made in monitoring, analysis, assessment, and/or documentation. For example, these could include:

1. More sophisticated analysis of patterns, correlations, and cycles that may be related to the extent of kelp bed canopies; or
2. Projects to improve understanding of influences on kelp beds or of how the extent of the canopies of various kelp beds has changed since the early 20th century.

B. Southern California Bight Monitoring Program Participation Requirements

The Discharger is required to participate in the Southern California Bight Regional Monitoring Program coordinated by the Southern California Coastal Water Research Project (SCCWRP), or any other coordinator named by the San Diego Water Board, pursuant to Water Code sections 13267 and 13383, and 40 CFR section 122.48. The intent of the Southern California Bight Regional Monitoring Program is to maximize the efforts of all monitoring partners using a more cost-effective monitoring design and to best utilize the pooled scientific resources of the Southern California Bight.

During these coordinated sampling efforts, a portion of the Discharger’s receiving water sampling and analytical effort, as defined in section IV of this MRP, may be reallocated to provide a regional assessment of the impact of the discharge of municipal wastewater to the Southern California Bight. In that event, the San Diego Water Board shall notify the Discharger in writing that a portion of the requirements to perform the receiving water sampling and analytical effort defined in section IV of this MRP is suspended for the duration of the reallocation. Anticipated modifications to the monitoring program will be coordinated so as to provide a more comprehensive picture of the ecological and statistical significance of

monitoring results and to determine cumulative impacts of various pollution sources. The level of resources in terms of sampling and analytical effort redirected from the receiving water monitoring program required under section IV of this MRP shall approximately equal the level of resources provided to implement the regional monitoring and assessment program, unless the San Diego Water Board and the Discharger agree otherwise. The specific scope and duration of the receiving water monitoring program reallocation and redirection shall be determined in writing by the San Diego Water Board, in consultation with the Discharger.

VI. SPECIAL STUDIES REQUIREMENTS

A. Climate Change Action Plan

The Discharger shall prepare and submit a Climate Change Action Plan (CCAP) within three years of the effective date of this Order. The Discharger may make use of existing climate-change-related plans to comply with this requirement. Changing climate conditions may fundamentally alter the way publicly-owned treatment works are designed and operated. Climate change research indicates the overarching driver of change is increased atmospheric carbon dioxide (CO₂) from human activity. The increased CO₂ emissions trigger changes to climatic patterns, which increase the intensity of sea level rise and coastal storm surges (Δ Sea Level), lead to more erratic rainfall and local weather patterns (Δ Weather Patterns), trigger a gradual warming of freshwater and ocean temperatures (Δ Water Temperature), and trigger changes to ocean water chemistry (Δ Water pH). The CCAP shall identify projected regional impacts on the Facilities and operations due to climate change if current trends continue. The CCAP shall also identify steps being taken or planned to address greenhouse gas emissions attributable to wastewater treatment plants, solids handling, and effluent discharge processes. The CCAP shall also identify steps being taken or planned to address flooding and sea level rise risks; volatile rain period impacts (both dry and wet weather); challenges in accommodating high and low wastewater flows; impacts on process design parameters due to higher BOD₅, ammonia (as N), and TSS influent concentrations; impacts on wastewater treatment operations and quality; the potential need to adjust NPDES permit conditions and the Discharger's pollution control program; the financing needed to pay for planned actions; schedules to update the CCAP as more information on climate change and its effect become more available; and any other factors as appropriate.

B. Plume Tracking Study

Plume tracking is an ongoing program designed to assess dispersion and fate of the wastewater plume discharged from the EOO. The plume tracking program shall be designed to address, at minimum, the following questions:

- (1) Are the current monitoring locations and methods adequate to determine whether the wastewater plume is encroaching on water recreational areas, including, but not limited to, areas used for swimming, scuba diving, surfing, and fishing? If not, what monitoring locations and/or methods are more appropriate?
- (2) How does the brine discharge from the CWRF and future brine discharges (along with increased recycled water use and decreased outfall discharge flows) affect the dynamics of the wastewater plume and initial dilution?
- (3) Does the wastewater plume have the potential to interact with wastewater plumes from other ocean outfalls or other sources of pollution, such as storm water?
- (4) What is the fate of the wastewater plume in typical and atypical oceanographic conditions, and when and under what conditions is the wastewater plume no longer distinguishable from ambient receiving water?

(5) What parameters are most useful for assessing the presence of a wastewater plume?

(6) What is the variability in the degree of initial dilution that occurs under typical and atypical oceanographic conditions?

The Discharger shall develop the following:

1. **Conceptual Site Model.** The Discharger shall construct a conceptual site model (CSM) based on available site-specific data such as the effluent quality at EOO, occurrence of waste constituents in the receiving water and sediment, and direction and magnitude of surface and subsurface currents. The CSM shall include three-dimensional spatial extent and temporal variability of the waste constituents in the receiving water; and the location and exposure points of actual and potential receptors (humans, animals, and plants).

The CSM shall be refined and updated as data becomes available. The initial CSM shall include a discussion of the level of uncertainty of conclusions, outline data gaps in the initial CSM, and describe the additional work needed to complete the CSM. Updates to the CSM shall be included in all future technical and monitoring reports submitted. The initial CSM shall be submitted to the San Diego Water Board with the work plan described in section VI.B.2.

2. **Plume Tracking Monitoring Plan (PTMP) Work Plan.** The Discharger shall develop and submit to the San Diego Water Board no later than June 30, 2019, a work plan designed to guide the collection of information to produce the PTMP described in section V.B.3. The PTMP Work Plan shall include, but is not limited to, the following:

- a. Conceptual Site Model;
- b. Evaluation of available technology that may assist with plume tracking study;
- c. Specific questions that will be answered with the plume tracking study;
- d. How the work on the plume tracking study will be divided amongst the participating agencies; and
- e. Schedule for completion of all activities and submission of a final plume tracking monitoring plan report as described in section VI.B.3 below.

The Discharger shall implement the PTMP Work Plan sixty (60) days after the PTMP Work Plan has been submitted, unless otherwise directed in writing by the San Diego Water Board. The Discharger shall notify the San Diego Water Board of the intent to initiate the proposed actions included in the PTMP Work Plan; and comply with any conditions set by the San Diego Water Board.

3. **Plume Tracking Monitoring Plan (PTMP).** The Discharger shall, in consultation with the San Diego Water Board, prepare and submit a PTMP to implement an ongoing program designed to evaluate dispersion and fate of the wastewater plume discharged from the EOO. The PTMP shall include, but is not limited to, the following elements:

- a. A feasibility analysis, including an assessment of advantages, disadvantages, cost, usefulness, and effectiveness for the installation and operation by the Discharger of a permanent, real-time oceanographic mooring system located near the terminal diffuser structure of the EOO. The mooring system shall be designed to measure, at minimum, direction and velocity of subsurface currents, and ocean stratification. This element shall also include:

- i. Development of a work plan or pilot study (special study) for implementation of the EOO real-time mooring system, including data acquisition and processing.
- ii. Networking the EOO system to be compatible with a similar system being deployed by other Dischargers in the San Diego Region, as well as a third system operated by the University of California San Diego, Scripps Institution of Oceanography in the coastal waters off the City of Del Mar.
- b. A feasibility analysis, including an assessment of advantages, disadvantages, cost, usefulness, and effectiveness for the development of a work plan or pilot study (special study) for utilizing advanced oceanographic sampling technologies such as an autonomous underwater vehicle (AUV) or remotely operated towed vehicle (ROTV) in conjunction with the EOO real-time mooring system to enhance collection of water quality data in real-time and provide higher resolution maps of plume location and movement. The Discharger may collaborate with other agencies (e.g., the City of San Diego) in the development of a work plan or pilot study.
- c. Any other element or alternative approach proposed by the Discharger to answer the questions posed above for the plume tracking.
- d. The recommended actions for implementation of an ongoing plume tracking program.

The PTMP shall be submitted in accordance with the timeframe outlined in the PTMP Work Plan. The PTMP shall include a detailed description and schedule for completion of all activities planned to implement the recommendations in the PTMP, and the schedule for submission of the final plume tracking results report.

4. **Plume Tracking Implementation.** The Discharger shall initiate implementation of the PTMP within sixty (60) days after submission in accordance with the schedule contained in the PTMP, unless otherwise directed by the San Diego Water Board. The Discharger shall notify the San Diego Water Board of the intent to initiate the proposed actions included in the PTMP; and comply with any conditions set by the San Diego Water Board. The Discharger shall submit semiannual progress reports to the San Diego Water Board on implementation of the PTMP.
5. **Results of Plume Tracking.** The results of the Plume Tracking Study shall be submitted with the receiving water monitoring report and state of the ocean report required in section IV.E of this MRP. This report shall include in-depth discussion, evaluation, interpretation, and tabulation of the project data. Report interpretations and conclusions shall include the state of the receiving waters around EOO and the estimated location of the EOO plume throughout the reporting period.

VII. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.
2. The Discharger shall report all instances of noncompliance not reported under sections V.E, V.G, and V.H of the Standard Provisions (Attachment D) at the time monitoring reports are submitted.

B. Self-Monitoring Reports (SMRs)

1. The Discharger shall electronically submit SMRs using the State Water Board's California Integrated Water Quality System (CIWQS) Program website at

http://www.waterboards.ca.gov/water_issues/programs/ciwqs/. The CIWQS website will provide additional information for SMR submittal in the event there will be a planned or unplanned service interruption for electronic submittal. SMRs must be signed and certified as required by section V of the Standards Provisions (Attachment D). The Discharger shall maintain sufficient staffing and resources to ensure it submits SMRs that are complete and timely. This includes provision for training and supervision of individuals on how to prepare and submit SMRs.

2. The Discharger shall report in the SMR the results for all monitoring specified in this MRP under sections III through IV. The Discharger shall submit SMRs including the results of all required monitoring using USEPA-approved test methods or other test methods specified in this Order. SMRs are to include all new monitoring results obtained since the last SMR was submitted. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR.
3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Table E-10. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	First day of second calendar month following month of sampling.
Daily	Permit effective date	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.	First day of second calendar month following month of sampling.
Weekly	Sunday following permit effective date or on permit effective date if on a Sunday	Sunday through Saturday	First day of second calendar month following month of sampling.
Monthly	First day of calendar month following permit effective date or on permit effective date if that date is first day of the month	1 st day of calendar month through last day of calendar month	First day of second calendar month following month of sampling.
Quarterly	Closest of January 1, April 1, July 1, or October 1 following (or on) permit effective date	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31	May 1 August 1 November 1 February 1
Semiannually	Closest of January 1 or July 1 following (or on) permit effective date	January 1 through June 30 July 1 through December 31	August 1 February 1
Once during the permit term	Permit effective date	Permit term	No later than 180 days prior to the expiration date of this Order

4. **Reporting Protocols.** The Discharger shall report with each sample result the applicable reported Minimum Level (reported ML, also known as the Reporting Level, or RL) and

the current Method Detection Limit (MDL), as determined by the procedure in 40 CFR part 136.

The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

- a. Sample results greater than or equal to the reported ML shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).
- b. Sample results less than the reported ML, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ. The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (\pm a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

- c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.
 - d. Dischargers are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.
5. **Compliance Determination.** Compliance with effluent limitations for reportable pollutants shall be determined using sample reporting protocols defined above and in Attachment A of this Order. For purposes of reporting and administrative enforcement by the San Diego Water Board and State Water Board, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the reportable pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reported ML.
6. **Multiple Sample Data.** When determining compliance with a measure of central tendency (arithmetic mean, geometric mean, median, etc.) of multiple sample analyses and the data set contains one or more reported determinations of DNQ or ND, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:
- a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.
 - b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

7. The Discharger shall submit SMRs in accordance with the following requirements:
 - a. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.
 - b. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the waste discharge requirements; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.

C. Discharge Monitoring Reports (DMRs)

The DMRs are USEPA reporting requirements. The Discharger shall electronically certify and submit DMRs together with SMRs using Electronic Self-Monitoring Reports (eSMR) module eSMR 2.5 or any upgraded version. Electronic DMRs submittal shall be in addition to electronic SMR submittal. Information about electronic DMRs submittal is available at the DMR website at:

http://www.waterboards.ca.gov/water_issues/programs/discharge_monitoring.

D. Other Reports

The following reports are required under Special Provisions (sections VI.A and VI.C of this Order), sections I, III, IV, V, and VI of this MRP, and the California Code of Regulations (CCR). The reports shall be submitted to the San Diego Water Board using the State Water Board's CIWQS program website, unless otherwise noted. The reports must be signed and certified as required by section V of the Standards Provisions (Attachment D). The CIWQS website will provide additional information for SMR submittal in the event of a planned or unplanned service interruption for electronic submittal.

Table E-11. Other Reports

Report	Location of requirement	Due Date
ROWD (for reissuance)	Section VI.A.2.f	No later than 180 days before the Order expiration date ¹
Treatment Plant Capacity Report	Section VI.C.5.a	Four years prior to reaching plant design capacity ¹
Annual Pretreatment Report	Section VI.C.5.b.iv	Annually no later than March 1
Annual Biosolids Report	Section VI.C.5.c.viii	Annually no later than February 19
DMR-QA Study	Section I.H of this MRP	Annually no later than December 31 ²
Initial Investigation TRE Work Plan	Section III.C.6 of this MRP	Within 90 days after adoption of this Order
Sediment Monitoring Work Plan	Section IV.4 of this MRP	Within 180 days of the effective date of this Order
Receiving Water Monitoring Report	Section IV.E.1 of this MRP	No later than 180 days prior to the expiration date of this Order
State of the Ocean Report	Section IV.E.3 of this MRP	No later than 180 days prior to the expiration date of this Order
Kelp Bed Canopy Report	Section V.A of this MRP	Annually no later than October 1
CCAP	Section VI.A of this MRP	No later than three years of the effective date of this Order
Plume Tracking Monitoring Plan Work Plan	Section VI.B.2 of this MRP	No later than June 30, 2019

Report	Location of requirement	Due Date
Plume Tracking Monitoring Plan	Section VI.B.3 of this MRP	As specified in the Plume Tracking Monitoring Plan Work Plan

¹ Submit in person or by mail to the San Diego Water Board office (2375 Northside Drive, Suite 100, San Diego, CA 92108) or by email at SanDiego@waterboards.ca.gov.

² See section I.H. of this MRP for instructions on how to submit the study.

ATTACHMENT F – FACT SHEET

CONTENTS

I.	Permit Information	F-3
II.	Facility Description	F-5
A.	Description of Wastewater and Biosolids Treatment and Controls	F-5
B.	Discharge Points and Receiving Waters	F-8
C.	Summary of Existing Requirements and Self-Monitoring Report (SMR) Data	F-8
D.	Compliance Summary	F-10
E.	Planned Changes	F-11
III.	Applicable Plans, Policies, and Regulations	F-12
A.	Legal Authorities	F-12
B.	California Environmental Quality Act (CEQA)	F-12
C.	State and Federal Laws, Regulations, Policies, and Plans	F-12
D.	Impaired Water Bodies on the CWA section 303(d) List	F-14
E.	Other Plans, Policies and Regulations	F-14
IV.	Rationale for Effluent Limitations and Discharge Specifications	F-14
A.	Discharge Prohibitions	F-14
B.	Technology-Based Effluent Limitations (TBELs)	F-15
1.	Scope and Authority	F-15
2.	Applicable Technology-Based Effluent Limitations	F-16
C.	Water Quality-Based Effluent Limitations (WQBELs)	F-18
1.	Scope and Authority	F-18
2.	Applicable Beneficial Uses and Water Quality Criteria and Objectives	F-19
3.	Determining the Need for WQBELs	F-19
4.	WQBEL Calculations	F-24
5.	Whole Effluent Toxicity (WET)	F-30
D.	Final Effluent Limitations	F-34
1.	Satisfaction of Anti-Backsliding Requirements	F-34
2.	Satisfaction of Antidegradation Policies	F-34
3.	Stringency of Requirements for Individual Pollutants	F-34
E.	Interim Effluent Limitations – Not Applicable	F-35
F.	Land Discharge Specifications – Not Applicable	F-35
G.	Recycling Specifications – Not Applicable	F-35
V.	Rationale for Receiving Water Limitations	F-35
VI.	Rationale for Provisions	F-35
A.	Standard Provisions	F-35
B.	Special Provisions	F-36
1.	Reopener Provisions	F-36
2.	Special Studies and Additional Monitoring Requirements	F-36
3.	Best Management Practices and Pollution Prevention	F-36
4.	Construction, Operation, and Maintenance Specifications	F-36
5.	Special Provisions for Publicly-Owned Treatment Works (POTWs)	F-37
6.	Other Special Provisions – Not Applicable	F-39
7.	Compliance Schedules – Not Applicable	F-39
VII.	Rationale for Monitoring and Reporting Requirements	F-39
A.	Core Monitoring Requirements	F-39
1.	Influent Monitoring	F-39
2.	Effluent Monitoring	F-39

3.	Whole Effluent Toxicity Testing Requirements	F-40
B.	Receiving Water Monitoring Requirements	F-41
1.	Surf Zone Water Quality Monitoring Requirements.....	F-41
2.	Near Shore and Offshore Water Quality Monitoring Requirements.....	F-41
3.	Benthic Monitoring Requirements.....	F-42
4.	Fish and Macroinvertebrate Monitoring Requirements	F-43
5.	Groundwater – Not Applicable.....	F-43
C.	Regional Monitoring Requirements	F-43
1.	Kelp Bed Canopy Monitoring Requirements	F-44
2.	Southern California Bight Regional Monitoring Program Participation Requirements .	F-44
D.	Special Studies Requirements	F-45
E.	Other Monitoring Requirements	F-45
VIII.	Public Participation.....	F-46
A.	Notification of Interested Parties	F-46
B.	Written Comments	F-46
C.	Public Hearing	F-46
D.	Reconsideration of Waste Discharge Requirements	F-47
E.	Information and Copying	F-47
F.	Register of Interested Persons.....	F-47
G.	Additional Information	F-47

TABLES

Table F-1.	Facility Information.....	F-3
Table F-2.	Facilities Tributary to the EOO	F-7
Table F-3.	Historical Effluent Limitations and Monitoring Data at Monitoring Location M-001 ¹	F-8
Table F-4.	Historical Effluent Limitations and Monitoring Data at Monitoring Location M-002 ¹	F-9
Table F-5.	Historical Effluent Limitations and Monitoring Data at Monitoring Location M-004 ¹	F-10
Table F-6.	Basin Plan Beneficial Uses	F-12
Table F-7.	Ocean Plan Beneficial Uses	F-13
Table F-8.	Summary of TBELs Based on Secondary Treatment Standards ¹	F-17
Table F-9.	Summary of TBELs on Table 2 of the Ocean Plan ¹	F-17
Table F-10.	RPA Results Summary ¹	F-21
Table F-11.	Pollutants Having Background Concentrations	F-24
Table F-12.	Example Parameter Water Quality Objectives ¹	F-25
Table F-13.	Summary of WQBELs at Monitoring Location M-004 ¹	F-25
Table F-14.	Summary of Performance Goals at Monitoring Location M-004 ¹	F-26

ATTACHMENT F – FACT SHEET

As described in section II.B of this Order, the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) incorporates this Fact Sheet as findings of the San Diego Water Board supporting the issuance of this Order. This Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for Dischargers in California. Only those sections or subsections of this Order that are specifically identified as “not applicable” have been determined not to apply to this Discharger. Sections or subsections of this Order not specifically identified as “not applicable” are fully applicable to this Discharger.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the Facility.

Table F-1. Facility Information

WDID	9 000000030	
Discharger	Encina Wastewater Authority (EWA)	
Name of Facility	Encina Ocean Outfall (EOO)	
Facility Address	Encina Water Pollution Control Facility (EWPCF)	6200 Avenida Encinas Carlsbad, CA 92011 San Diego County
	Meadowlark Water Reclamation Plant (MWRP)	7941 Corintia Street Carlsbad, CA 92009 San Diego County
	Carlsbad Water Reclamation Facility (CWRF)	6220 Avenida Encinas Carlsbad, CA 92011 San Diego County
Facility Contact, Title and Phone	Michael F. Steinlicht, General Manager, 760-268-8847	
Authorized Person to Sign and Submit Reports	Michael F. Steinlicht, General Manager, 760-268-8847	
Mailing Address	6200 Avenida Encinas, Carlsbad, CA 92011-92011	
Billing Address	Same as mailing address	
Type of Facility	Publicly-Owned Treatment Works (POTW)	
Major or Minor Facility	Major	
Threat to Water Quality	1	
Complexity	A	
Pretreatment Program	Y	
Recycling Requirements	Producer and Distributor (regulated under separate waste discharge requirements (WDRs))	
Facility Permitted Flow	<ul style="list-style-type: none"> • EWPCF – 40.5 million gallons per day (MGD) • MWRP – 5 MGD • CWRF – 0.2 MGD • Combined Discharge to EOO, including discharges from the EWPCF, the MWRP, and the CWRF <ul style="list-style-type: none"> ○ 43.3 MGD (May through October) ○ 52.6 MGD (November through April) 	

Facility Design Flow	<ul style="list-style-type: none"> • EWPCF – 40.5 MGD (secondary treatment design capacity) • MWRP – 5 MGD (design capacity) • CWRF – 0.2 MGD (maximum brine discharge) • EOO - 75 MGD
Watershed	Pacific Ocean
Receiving Water	Pacific Ocean
Receiving Water Type	Ocean waters

- A. The Encina Wastewater Authority (EWA or Discharger) is a public joint powers authority established pursuant to California Government Code section 6500 et seq. and owned by the following member agencies: City of Carlsbad, City of Vista, City of Encinitas, Buena Sanitation District (a subsidiary of City of Vista), Vallecitos Water District, and Leucadia Wastewater District. The EWA is the owner and operator of the Encina Ocean Outfall (EOO) and the Encina Water Pollution Control Facility (EWPCF), a POTW. The Carlsbad Municipal Water District, a subsidiary of the City of Carlsbad, independently owns the Carlsbad Water Reclamation Facility (CWRF), a POTW, which is operated by the EWA. The Vallecitos Water District independently owns and operates the Meadowlark Water Reclamation Plant (MWRP), a POTW, and the MWRP land outfall structure, prior to connection with the EOO. The Discharger holds the Vallecitos Water District responsible for meeting this Order's requirements for the MWRP and land outfall structure.¹ The EWPCF, the CWRF, the MWRP, the land outfall for the MWRP, and the EOO are collectively referred to as the Facilities.

For the purposes of this Order, references to the "discharger" or "permittee" in applicable federal and State laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

- B. The Facilities discharge wastewater through the EOO to the Pacific Ocean, a water of the U.S. The Discharger was previously regulated by Order No. R9-2011-0019 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0107395 adopted on April 13, 2011 and expired on June 1, 2016. Attachment B provides a map of the area around the Facilities. Attachment C provides flow schematics of the EWPCF, the CWRF, and the MWRP.
- C. The Discharger filed a Report of Waste Discharge (ROWD) and submitted an application for reissuance of its WDRs and NPDES permit on December 3, 2015. The application was deemed complete on December 30, 2015. A site visit was conducted on February 7 and March 7, 2018 to observe operations and collect additional data to develop permit limitations and requirements for waste discharge.
- D. Regulations at title 40 of the Code of Federal Regulations (40 CFR) section 122.46 limit the duration of NPDES permits to a fixed term not to exceed five years. Accordingly, Table 3 of this Order limits the duration of the discharge authorization. However, pursuant to California Code of Regulations (CCR), title 23, section 2235.4, the terms and conditions of an expired permit are automatically continued pending reissuance of the permit if the Discharger complies with all federal NPDES requirements for continuation of expired permits.

¹ Memorandum of Understanding between Encina Wastewater Authority and Vallecitos Water District to Ensure the Meadowlark Water Reclamation Plant's Continued Compliance with the National Pollutant Discharge Elimination Permit Issued to the Encina Wastewater Authority of the Encina Ocean Outfall, dated May 24, 2006, submitted to the San Diego Water Board on April 26, 2018.

II. FACILITY DESCRIPTION

A. Description of Wastewater and Biosolids Treatment and Controls

The Facilities provides wastewater treatment to a population of approximately 411,000 residents within the boundaries of the EWA member agencies. Each EWA member agency owns, operates, and maintains its own sanitary sewer system which conveys wastewater to the MWRP or the EWPCF. The EWA does not own any portion of a sanitary sewer system. There are four non-categorical significant industrial users and 18 categorical industrial users within the areas served by the MWRP and the EWPCF.

1. EWA - Encina Water Pollution Control Facility (EWPCF)

The EWPCF is located at 6200 Avenida Encinas in Carlsbad, California, approximately one-third mile from the ocean near the mouth of Canyon de las Encinas.

Wastewater treatment unit operations and processes at the EWPCF consist of bar screening, peroxide addition, grit removal, primary sedimentation, biological treatment using activated sludge, and secondary clarification. The EWPCF also has disinfection (chlorination) capabilities limited to the capacity necessary to disinfect secondary-treated effluent currently reused onsite at the EWPCF. Solids treatment unit operations and processes consist of dissolved air flotation (DAF) thickening, anaerobic digestion, mechanical dewatering (centrifuges), and heat drying. According to the *Certification of the Design Capacity of the Existing Encina Water Pollution Control Facility*, dated June 29, 2010 and included in the Discharger's 2010 ROWD, "the design capacity of the existing EWPCF is adequate to treat an average annual 40.5 MGD liquid and 43.3 MGD solids flow."

Up to 7 MGD of secondary-treated effluent is diverted to the CWRP, up to 1 MGD is diverted to the Gafner Water Reclamation Plant (GWRP)², and up to 6.8 MGD is used onsite at the EWPCF³. All other effluent from the EWPCF is discharged to the Pacific Ocean through the EOO. In 2017, the reported average daily flow from the EWPCF to the EOO was 22.6 MGD.

All solids separated from wastewater at the EWPCF are treated onsite to meet 40 CFR part 503 requirements. Solids and biosolids collected at the EWPCF may be trucked to landfills in San Diego County, California; trucked to land application sites in Yuma County, Arizona; or used in an application approved by the Executive Officer. Biosolids which are land applied are shipped by a contractor for application in Arizona.

2. Vallecitos Water District - Meadowlark Water Reclamation Plant (MWRP)

The MWRP is located at 7941 Corintia Street in Carlsbad, California, approximately 5.5 miles east of the EWPCF. The MWRP accepts raw wastewater from the Vallecitos Water District's sanitary sewer system. The MWRP is a "skimming" water reclamation facility (i.e., the MWRP only "skims" or extracts enough raw wastewater needed for reclamation purposes from the Vallecitos Water District's sanitary sewer system). Wastewater not skimmed by the MWRP flows to the EWPCF for treatment.

² The GWRP is currently regulated by separate WDRs, Order No. R9-2004-0223, Waste Discharge Requirements for Leucadia Wastewater District Forest R. Gafner Water Reclamation Plant San Diego County, adopted September 8, 2004.

³ Secondary-treated effluent is used onsite at the EWPCF for the sand filter influent, heat drying process, centrifuge centrate dilution water, hose down water, chemical batching, and balance seal water (up to 1.3 MGD); for the cogeneration facility cooling (up to 1.5 MGD); for the odor reduction facilities (up to 1.8 MGD); and for the DAF tanks (up to 2.2 MGD).

Wastewater treatment unit operations and processes at the MWRP consist of inline sewage grinding, grinding with augers, primary sedimentation, roughing filtration, biological treatment using activated sludge, secondary clarification, tertiary filtration, and chlorine disinfection.

The tertiary-treated wastewater from the MWRP distributed to reuse sites is currently regulated by separate WDRs under Order No. R9-2007-0018.

Effluent that is not recycled, such as effluent not meeting CCR title 22 water recycling requirements or excess tertiary-treated effluent, is conveyed through the Meadowlark land outfall (also referred to as a failsafe outfall), which connects to the EOO and the Pacific Ocean. According to the 2015 ROWD, the daily average capacity for the MWRP is 5 MGD. The reported average daily flow from the MWRP to the EOO in 2017 was 1.4 MGD.

All solids separated from wastewater at the MWRP are conveyed to the EWPCF for treatment.

3. Carlsbad Municipal Water District - Carlsbad Water Reclamation Facility (CWRF)

The CWRF is located at 6220 Avenida Encinas in Carlsbad, California, adjacent to the EWPCF. The CWRF is a “skimming” water reclamation facility (i.e., the CWRF only “skims” or extracts enough secondary-treated effluent needed for reclamation purposes from the EWPCF). Since the adoption of the previous order (Order No. R9-2011-0019), the CWRF production rate for recycled water increased from 4 MGD to 7 MGD. Secondary-treated effluent not skimmed from the EWPCF for tertiary treatment is discharged to the EOO.

Wastewater treatment unit operations and processes at the CWRF consist of continuous backwash granulated media filtration, microfiltration or ultrafiltration (MF/UF), reverse osmosis (RO) membrane filtration (typically bypassed), decarbonation (typically bypassed), chlorine disinfection, and solids thickening. MF/UF backwash, along with other backwash from other CWRF processes, is thickened and returned to the EWPCF for treatment and disposal.

The tertiary-treated wastewater from the CWRF distributed to reuse sites is currently regulated by separate WDRs under Order No. R9-2016-0183.

Up to 0.2 MGD of waste brine from the RO process at the CWRF may be discharged directly to the ocean through the EOO or to the EWPCF’s aeration basins. Source water that is not recycled, such as effluent not meeting CCR title 22 water recycling requirements, is discharged to the EWPCF’s aeration basins. There were no reported flows from the CWRF to the EOO during the term of previous order (Order No. R9-2011-0019).

4. Leucadia Wastewater District - Gafner Water Reclamation Plant (GWRP)

The Leucadia Wastewater District (LWD), a member agency of the EWA, independently owns and operates the GWRP located at 1960 La Costa Avenue in Leucadia, California, approximately 3.5 miles southeast of the EWPCF. A portion of secondary-treated effluent from the EWPCF is diverted to the GWRP to produce up to 1 MGD of recycled water. The tertiary-treated wastewater from the GWRP distributed to reuse sites is currently regulated by separate WDRs under Order No. R9-2004-0223.

Wastewater treatment unit operations and processes at the GWRP consist of filtration and chlorine disinfection.

Solids and other waste stream flows from the GWRP, including effluent not meeting CCR title 22 water recycling requirements, are discharged back to the sanitary sewer system and subsequently conveyed to and treated at the EWPCF. The GWRP is not connected to the EOO.

5. City of Vista - Shadowridge Water Reclamation Plant (SWRP)

The City of Vista, a member agency of the EWA, independently owns the SWRP, which is located at 2525 Lupine Hills Road in Vista, California approximately 6 miles northeast of the EWPCF. When it operated, the SWRP was a water recycling plant. Effluent from the SWRP not distributed to reuse sites was discharged to the EOO. The previous Orders included the discharge from the SWRP to the EOO.

The SWRP ceased operations in 2005. Since that time, the City of Vista has removed some of the equipment from the SWRP, and the SWRP has been disconnected from the EOO. The City of Vista uses the basins remaining at the site as temporary storage for raw sewage from the sewage collection system during emergencies or capital improvement projects. By letter dated April 16, 2018, the Discharger requested that the San Diego Water Board remove the SWRP from the NPDES Permit No. CA0107395. Given that the SWRP is no longer connected to the EOO and the Discharger submitted a request to remove the SWRP, this Order does not provide coverage for discharges from the SWRP to the EOO.

6. EWA - Encina Ocean Outfall (EOO)

Table F-2 summarizes the current design, permitted, and reported daily average flows to the EOO.

Table F-2. Facilities Tributary to the EOO

Discharge Facility	Nature of Discharge	Current Design Flow	Permitted Flow to the EOO	Reported Average Daily Flows					
				2012	2013	2014	2015	2016	2017
				MGD					
EWPCF ¹	Secondary-treated Effluent	40.5	40.5	24.03	22.45	21.59	20.49	21.26	22.65
MWRP	Tertiary-treated Effluent	5	5 ²	1.15	0.78	0.77	0.71	0.63	1.43
CWRF	Waste Brine	0.2	0.2 ³	0	0	0	0	0	0
EOO	Secondary- and Tertiary-treated Effluent, and Waste Brine	75	⁴	23.00	21.25	20.08	19.83	19.69	21.14

¹ For the EWPCF, the reported daily average flows include secondary-treated effluent used onsite.

² As noted in section II.A.2 of this Fact Sheet, the MWRP is a skimming facility and only skims enough raw wastewater to meet the recycled water demands. The Meadowlark land outfall is the failsafe outfall and is only utilized for effluent that is not recycled (e.g., effluent not meeting CCR title 22 water recycling requirements).

³ In previous order (Order No. R9-2011-0019), the flow prohibition for the CWRF was set at 4 MGD, which includes the CWRF effluent that is not recycled (e.g., effluent not meeting CCR title 22 water recycling requirements) in addition to the waste brine. However, as noted in section II.A.3 of this Fact Sheet, up to 0.2 MGD of CWRF waste brine is discharged through the EOO, while the CWRF effluent that is not recycled is discharged back to the EWPCF's aeration basins. Thus, this Order corrects the discharge flow from 4.0 MGD (the original production rate for recycled water at the CWRF) to 0.2 MGD (waste brine from the RO process at the CWRF) and replaces the flow prohibition with a flow limitation.

⁴ During dry-weather months (May to October) the calendar-monthly average flow rate shall not exceed 43.3 MGD. During wet-weather months (November to April) the calendar-monthly average flow rate shall not exceed 52.6 MGD.

This Order carries over the dry-weather (May through October) monthly average flow limitation of 43.3 MGD and wet-weather (November through April) monthly average flow limitation of 52.6 MGD from Order No. R9-2011-0019. The dry-weather flow limitation was used in calculations for ocean outfall dilution factors, effluent limitations, and performance goals.

Based on the historical flow data shown in Table F-2, the average flows from all three facilities is less than the dry-weather monthly average flow limitation of 43.3 MGD. Also, the *Certification of the Capacity and Condition of the Encina Ocean Outfall Encina Water Pollution Control Facility* (dated November 13, 2015 and included with the 2015 ROWD) concluded that the existing EOO is in good condition and projected flows to the EOO by 2040 are expected to be approximately 35 MGD. Given this, the Discharger is projected to meet the dry-weather monthly average flow limitation for the EOO.

B. Discharge Points and Receiving Waters

The Discharger owns and operates the EOO which begins at the EWPCF and extends southwesterly from the mouth of Canyon de las Encinas approximately 7,800 feet offshore to a depth of approximately 165 feet. The EOO consists of an original 5,500-foot section of 48-inch reinforced concrete pipe and a 2,300-foot extension of 72-inch diameter reinforced concrete pipe. The final 800 feet of the 72-inch extension is the diffuser, collinear with the rest of the outfall and extending to a depth of approximately 168 feet below mean lower low water (MLLW). The diffuser has 44 2.5-inch diameter ports, 44 2.75-inch diameter ports, 48 3-inch diameter ports, and two 4-inch diameter ports.

The *Certification of the Capacity and Condition of the Encina Ocean Outfall Encina Water Pollution Control Facility* (dated November 13, 2015 and included with the 2015 ROWD) concluded that the existing EOO is in good condition and the 75 MGD design capacity is adequate for currently projected peak flows through 2025 at a minimum, and through 2040 with improvements to the Facilities.

C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

Effluent limitations contained in Order No. R9-2011-0019 for discharges from the EWPCF and the MWRP and representative monitoring data obtained at Monitoring Locations M-001, M-002, and M-004 are as follows:

Table F-3. Historical Effluent Limitations and Monitoring Data at Monitoring Location M-001¹

Parameter	Units	Effluent Limitation			Monitoring Data (From June 2011 To April 2018)		
		Average Monthly	Average Weekly	Instantaneous Maximum	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Instantaneous Discharge
Carbonaceous Biochemical Oxygen Demand (5-day @ 20 degrees Celsius (°C)) (CBOD ₅)	milligram per liter (mg/L)	25	40	--	31	50	--
	pounds per day (lbs/day)	8,400 ²	14,000 ²	--	6,234	9,915	--
	% Removal	≥85	--	--	90 ³	--	--
Total Suspended Solids (TSS)	mg/L	30	45	--	63	111	--
	lbs/day	10,000 ²	15,000 ²	--	13,024	24,967	--
	% Removal	≥85	--	--	80 ³	--	--

Parameter	Units	Effluent Limitation			Monitoring Data (From June 2011 To April 2018)		
		Average Monthly	Average Weekly	Instantaneous Maximum	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Instantaneous Discharge
Oil and Grease	mg/L	25	40	75	50	140	140
	lbs/day	8,400 ²	14,000 ²	25,000 ¹	10,484	29,558	29,558
Settleable Solids	milliliter per liter (ml/L)	1.0	1.5	3.0	0.4	1.0	2.5
Turbidity	nephelometric turbidity unit (NTU)	75	100	225	5.7	27	32
pH	standard units	--	--	6.0 – 9.0 ⁴	--	--	7.25 - 7.96 ⁴

¹ See Attachment A for definitions of abbreviations and a glossary of common terms used in this Order.

² CBOD₅, TSS, and oil and grease mass emission rate (MER) effluent limitations are based on the permitted flow rate for the EWPCF (40.5 MGD).

³ Minimum value.

⁴ Instantaneous minimum and maximum value.

Table F-4. Historical Effluent Limitations and Monitoring Data at Monitoring Location M-002¹

Parameter	Units	Effluent Limitation			Monitoring Data (From June 2011 To April 2018)		
		Average Monthly	Average Weekly	Instantaneous Maximum	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Instantaneous Discharge
CBOD ₅	mg/L	25	40	--	4.4	5.7	--
	lbs/day	1,000 ²	1,700 ²	--	2184	2184	--
	% Removal	≥85	--	--	98 ³	--	--
TSS	mg/L	30	45	--	12.1	12.1	--
	lbs/day	1,300 ²	1,900 ²	--	69	119	--
	% Removal	≥85	--	--	95 ³	--	--
Oil and Grease	mg/L	25	40	75	<5.7	<5.7	<5.0
	lbs/day	1,000 ²	1,700 ²	3,100 ¹	<1,002.65	<1,002.65	<1,002.65
Settleable Solids	ml/L	1.0	1.5	3.0	0.13	0.2	0.2
Turbidity	NTU	75	100	225	5.0	5.7	5.7
pH	standard units	--	--	6.0 – 9.0 ⁴	--	--	6.3 - 7.4 ⁴

¹ See Attachment A for definitions of abbreviations and a glossary of common terms used in this Order.

² CBOD₅, TSS, and oil and grease MER effluent limitations are based on the permitted flow rate for the MWRP (5 MGD).

³ Minimum value.

⁴ Minimum and maximum value.

Table F-5. Historical Effluent Limitations and Monitoring Data at Monitoring Location M-004¹

Parameter	Units	Effluent Limitation ¹			Monitoring Data (From June 2011 To April 2018)		
		6-Month Median	Maximum Daily	Instantaneous Maximum	Highest Average 6-Month Median	Highest Daily Discharge	Highest Instantaneous Discharge
Chlorine, Total Residual	microgram per liter (µg/L)	290	1,200	8,700	233	1017	5,000
	lbs/day	100	420	3,100	48	184	1,060
Chronic Toxicity ²	Toxic Units Chronic (TUC)	--	145	--	--	71.4	--

¹ See Attachment A for definitions of abbreviations and a glossary of common terms used in this Order.

² Chronic toxicity expressed as Chronic Toxicity Units (TUC) = 100/NOEL, where NOEL (No Observed Effect Level) is expressed as the maximum percent effluent or receiving water that causes no observable effect on a test organism.

D. Compliance Summary

As of April, 2018, the Discharger has reported the following violations of Order No. R9-2011-0019.

1. In March and April 2018, the EWPCF experienced a single operation upset (SOU) that resulted in the following effluent exceedances:
 - a. The average weekly effluent limitation of 45 mg/L for TSS was exceeded on March 17, March 31, and April 7, with reported values of 109.3, 111.5, and 51.1 mg/L, respectively.
 - b. The average weekly effluent limitation of 15,000 lbs/day for TSS was exceeded on March 17 and March 31, with reported values of 21,469 and 23,967 lbs/day, respectively.
 - c. The average monthly effluent limitation of 30 mg/L for TSS was exceeded on March 31, with a reported value of 63.5 mg/L.
 - d. The average monthly effluent limitation of 10,000 lbs/day for TSS was exceeded on March 31, with a reported value of 13,024 lbs/day.
 - e. The minimum average monthly percent removal for TSS of 85% was not met on March 31, with a reported value of 79.6%.
 - f. The average weekly effluent limitation of 40 mg/L for CBOD₅ was exceeded on March 17, with a reported value of 50.3 mg/L.
 - g. The average monthly effluent limitation of 25 mg/L for CBOD₅ was exceeded on March 31, with a reported value of 30.5 mg/L.
2. Order No. R9-2011-0019, section III.D prohibits discharges from the EWPCF in excess of a daily average flow rate of 40.5 MGD. On February 28, 2017, the Discharger reported a flow rate of 40.91 MGD.
3. Order No. R9-2011-0019, Attachment E, section IV.A.1, Table E-3 states that CBOD₅ shall be sampled three days per week at Monitoring Locations M-001 and M-002.

- a. The August 2011 monthly monitoring report only included two monitoring results for CBOD₅ for the week of August 21 at Monitoring Location M-001.
 - b. The January 2012 monthly monitoring report only included two monitoring results for CBOD₅ for the week of January 15 at Monitoring Locations M-001 and M-002.
4. Order No. R9-2011-0019, Attachment E, section IV.A.1, Table E-3 states that TSS shall be sampled five days per week at Monitoring Location M-002. The November 2011 monthly monitoring report only included three monitoring results for TSS for the week of November 6 and November 13 at Monitoring Location M-002.
5. Order No. R9-2011-0019, Attachment E, section IV.A.1, Table E-3 states that settleable solids and turbidity shall be sampled once per week at Monitoring Location M-002. The March 2014 monthly monitoring report didn't include any monitoring results for settleable solids and turbidity for the week of March 12 at Monitoring Location M-002.
6. Order No. R9-2011-0019, Attachment E, section IV.A.1, Table E-3 states that oil and grease shall be sampled once per month at Monitoring Locations M-001 and M-002.
 - a. The September 2015 monthly monitoring report didn't include any monitoring results for settleable solids and turbidity at Monitoring Locations M-001 and M-002.
 - b. The November 2015 monthly monitoring report didn't include any monitoring results for settleable solids and turbidity at Monitoring Location M-002.
 - c. The December 2015 monthly monitoring report didn't include any monitoring results for settleable solids and turbidity at Monitoring Location M-002.
 - d. The January 2016 monthly monitoring report didn't include any monitoring results for settleable solids and turbidity at Monitoring Location M-002.
7. Order No. R9-2011-0019, Attachment E, section X.B.3, Table E-15 states the due dates for monthly monitoring reports.
 - a. The first quarter 2016 monitoring report was submitted late.
 - b. The March 2016 monthly monitoring report was submitted late.
8. Order No. R9-2011-0019, section III.A states that discharge of waste to a location other than the EOO is prohibited.
 - a. On February 29, 2012, 3,000 gallons of chlorinated secondary-treated wastewater spilled from an irrigation line at the EWPCF, of which 2,600 gallons was recovered and 400 gallons entered the Encinitas Creek Flood Control Channel.
 - b. On May 19, 2012, 450 gallons of chlorinated secondary-treated wastewater spilled from an irrigation line at the EWPCF and entered the Encinitas Creek Flood Control Channel.
9. Order No. R9-2011-0019, Attachment E, section X.B.4 states that the Discharger shall not use a minimum level (ML) that is greater than that specified in Appendix II of the Ocean Plan. In the first quarter 2016 monitoring report, the Discharger reported a ML that is greater than the ML specified in Appendix II of the Ocean Plan for at least seven constituents.

E. Planned Changes

The Discharger has not indicated that they have any planned capital improvement projects scheduled to occur within the term of this Order.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in this Order are based on the requirements and authorities described in this section.

A. Legal Authorities

This Order serves as WDRs pursuant to article 4, chapter 4, division 7 of the California Water Code (Water Code) (commencing with section 13260). This Order is also issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U. S. Environmental Protection Agency (USEPA) and chapter 5.5, division 7 of the Water Code (commencing with section 13370). It shall serve as an NPDES permit authorizing the Discharger to discharge into waters of the U.S. at the discharge location described in Table 2 subject to the WDRs in this Order.

B. California Environmental Quality Act (CEQA)

Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of chapter 3 of CEQA, (commencing with section 21100) of division 13 of the Public Resources Code.

C. State and Federal Laws, Regulations, Policies, and Plans

1. **Water Quality Control Plan.** The San Diego Water Board adopted a *Water Quality Control Plan for the San Diego Basin* (Basin Plan) on September 8, 1994 that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for the Pacific Ocean and other receiving waters addressed through the plan. Subsequent revisions to the Basin Plan have also been adopted by the San Diego Water Board and approved by the State Water Resources Control Board (State Water Board). Beneficial uses applicable to the Pacific Ocean specified in the Basin Plan are summarized in Table F-6:

Table F-6. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Pacific Ocean	Industrial service supply (IND); navigation (NAV); water contact recreation (REC-1); non-contact recreation (REC-2); commercial and sport fishing (COMM); preservation of biological habitats of special significance (BIOL); wildlife habitat (WILD); rare, threatened, or endangered species (RARE); marine habitat (MAR); aquaculture (AQUA); migration of aquatic organisms (MIGR); spawning, reproduction, and/or early development (SPWN); and shellfish harvesting (SHELL).

In order to protect the beneficial uses, the Basin Plan establishes water quality objectives and a program of implementation. Requirements of this Order implement the Basin Plan.

2. **California Ocean Plan.** The State Water Board adopted the *Water Quality Control Plan for Ocean Waters of California, California Ocean Plan* (Ocean Plan) in 1972 and amended it in 1978, 1983, 1988, 1990, 1997, 2000, 2005, 2009, 2012, and 2015. The State Water Board adopted the latest amendment on May 6, 2015, and it became effective on January 28, 2016. The Ocean Plan is applicable, in its entirety, to point source discharges to the ocean. The Ocean Plan identifies beneficial uses of ocean waters of the State to be protected as summarized in Table F-7:

Table F-7. Ocean Plan Beneficial Uses

Discharge Point	Receiving Water	Beneficial Uses
001	Pacific Ocean	IND; REC-1; REC-2, including aesthetic enjoyment; NAV; COMM; mariculture; preservation and enhancement of designated Areas of Special Biological Significance (ASBS); rare and endangered species; MAR; fish migration; fish spawning; and SHELL.

In order to protect the beneficial uses, the Ocean Plan establishes water quality objectives and a program of implementation. Requirements of this Order implement the Ocean Plan.

3. **Alaska Rule.** On March 30, 2000, USEPA revised its regulation that specifies when new and revised State and tribal water quality standards (WQS) become effective for CWA purposes (40 CFR section 131.21, 65 Fed. Reg. 24641 (April 27, 2000)). Under the revised regulation (also known as the Alaska Rule), new and revised standards submitted to USEPA after May 30, 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by May 30, 2000, may be used for CWA purposes, whether or not approved by USEPA.
4. **Antidegradation Policy.** Federal regulation 40 CFR section 131.12 requires that the State water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution 68-16, *Statement of Policy with Respect to Maintaining High Quality of Waters in California*. Resolution 68-16 is deemed to incorporate the federal antidegradation policy where the federal policy applies under federal law. Resolution 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The San Diego Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. The permitted discharge must be consistent with the antidegradation provision of 40 CFR section 131.12 and State Water Board Resolution 68-16.
5. **Anti-Backsliding Requirements.** Sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 CFR section 122.44(l) restrict backsliding in NPDES permits. These Anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed.
6. **Endangered Species Act Requirements.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code, sections 2050 to 2097) or the federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with effluent limitations, receiving water limits, and other requirements to protect the beneficial uses of waters of the State, including protecting rare and endangered species. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.
7. **Sewage Sludge and Biosolids.** This Order does not authorize any act that results in violation of requirements administered by USEPA to implement 40 CFR part 503, *Standards for the Use or Disposal of Sewage Sludge*. These standards regulate the final use or disposal of sewage sludge that is generated during the treatment of domestic

sewage in a municipal wastewater treatment facility. The Discharger is responsible for meeting all applicable requirements of 40 CFR part 503 that are under USEPA's enforcement authority.

D. Impaired Water Bodies on the CWA section 303(d) List

In July 2015, USEPA approved the list of impaired water bodies, prepared by the State Water Board pursuant to CWA section 303(d), which are not expected to meet applicable water quality standards after implementation of technology-based effluent limitations (TBELs) for point sources. The waters in the Pacific Ocean in the vicinity of the EOO are currently not on the CWA section 303(d) list.

E. Other Plans, Policies and Regulations

1. **Secondary Treatment Regulations.** Part 133 of 40 CFR establishes the minimum levels of effluent quality to be achieved by secondary treatment. These limitations, established by the USEPA, are incorporated into this Order, except where more stringent limitations are required by other applicable plans, policies, or regulations.
2. **Storm Water.** Sewage treatment works with a design flow of 1.0 MGD or greater are required to comply with Order No. 2014-0057-DWQ (NPDES No. CAS000001), *General Permit for Storm Water Discharges Associated with Industrial Activities*. The Discharger is currently regulated under Order No. 2014-0057-DWQ.
3. **Pretreatment.** Discharges of pollutants that may interfere with operations of a POTW are regulated by USEPA's pretreatment regulations at 40 CFR part 403. These regulations require Dischargers to develop and implement pretreatment programs that impose limitations on IUs of the POTWs.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the U.S. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the Code of Federal Regulations: 40 CFR section 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 CFR section 122.44(d) requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water.

A. Discharge Prohibitions

This Order retains the discharge prohibitions from Order No. R9-2011-0019, with some exceptions as described below. Discharges from the Facilities to surface waters in violation of prohibitions contained in this Order are violations of the CWA and therefore are subject to third party lawsuits. Discharges from the Facilities to land in violation of prohibitions contained in this Order are violations of the CWC and are not subject to third party lawsuits under the CWA because the CWC does not contain provisions allowing third party lawsuits.

1. Order No. R9-2011-0019 contained Discharge Prohibitions III.A and III.B, which clearly define what types of discharges are prohibited. These prohibitions have been retained in this Order as Discharge Prohibitions III.A and III.B.
2. Order No. R9-2011-0019 contained Discharge Prohibition III.C, which prohibits discharges that cause violation of Ocean Plan water quality objectives established in chapter II of the Ocean Plan. Because this prohibition is already included in Attachment G, *Discharge*